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**U.S. Energy Information
Administration**

Alternative Energies and America's Security

**Strategic Implications of Emerging Technologies
Annual Strategic Conference**

**Strategic Studies Institute, U.S. Army War
College**

April 14-16, 2009



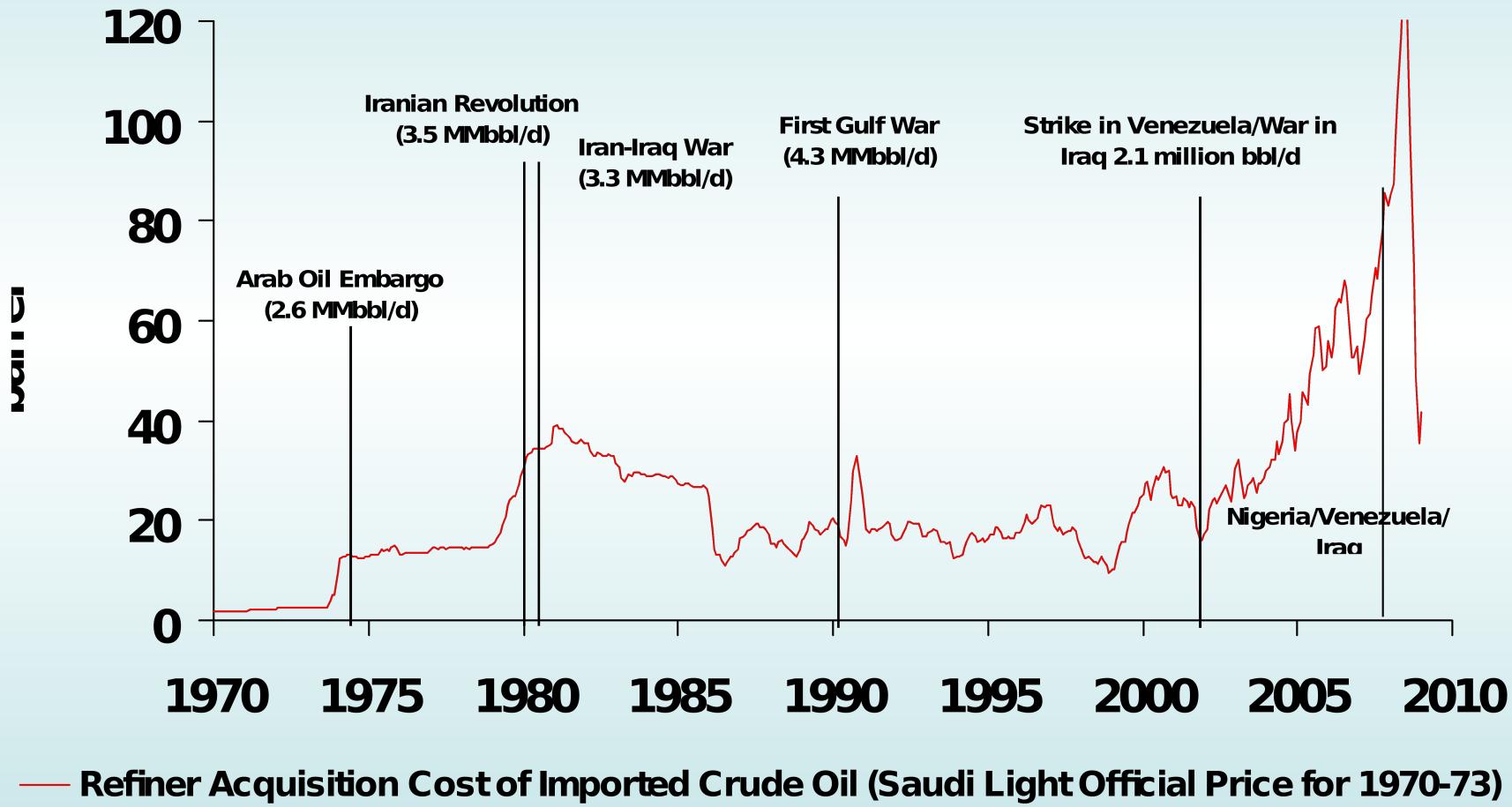
Energy Security Means Different Things To Different People, Even Within the USG

- In Iraq, energy security could mean having enough hours of electricity during rolling blackouts to avoid social unrest.
- To Belarus, Estonia, Georgia, Latvia, Lithuania, and Ukraine, it means not having their oil or gas supplies cut off by Russia.
- To environmentalists, it could mean reducing greenhouse gas emissions and staving off global warming.
- To many politicians, energy security = energy independence.
- In DOE, it has also meant having a number of reliable, short-haul suppliers. This is one reason Venezuela/Chavez are a concern.
- To others, energy security means affordable gasoline or diesel.

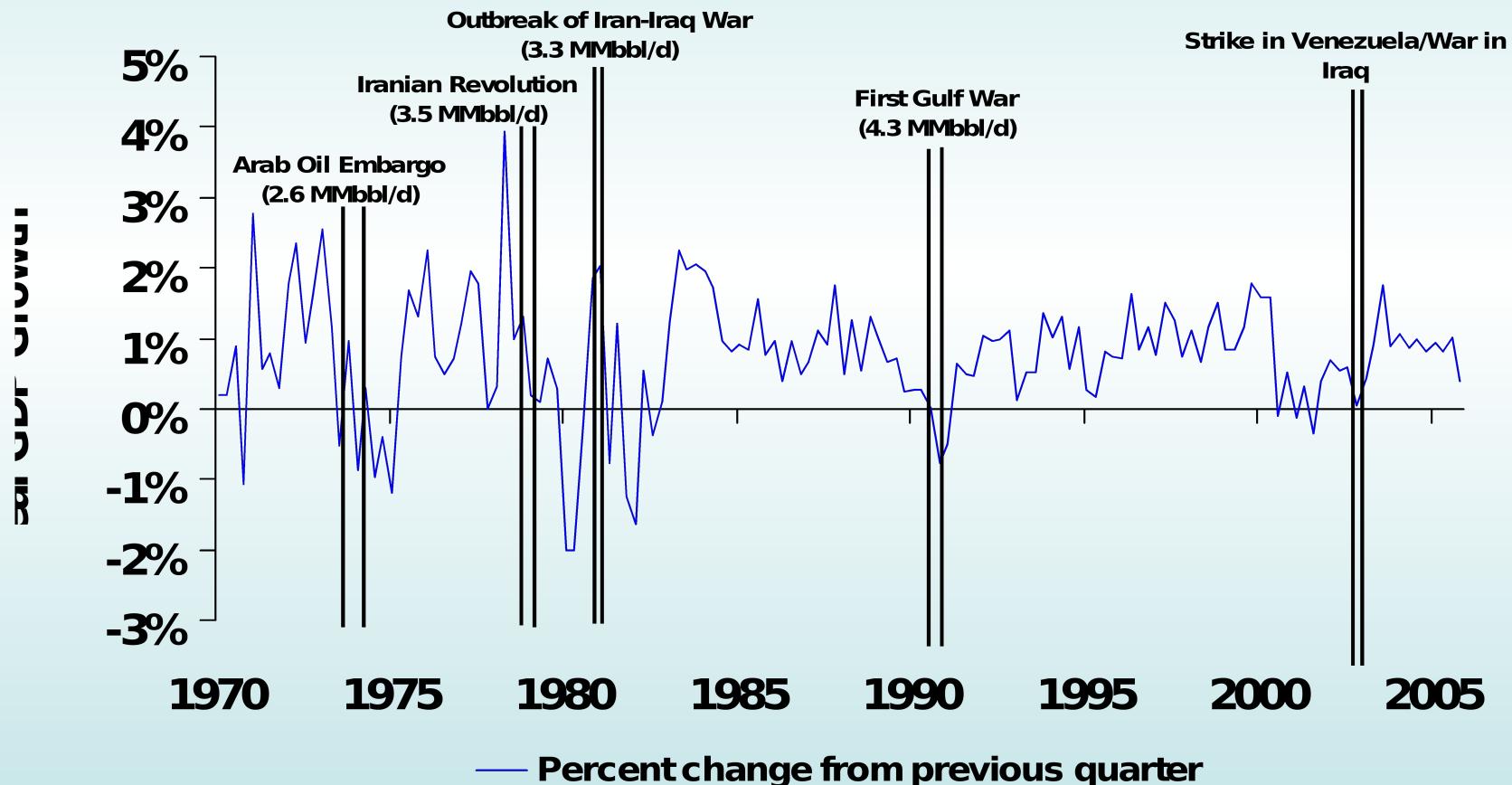
There Are Many Oil Supply Areas of Concern Worldwide At Any Give Time



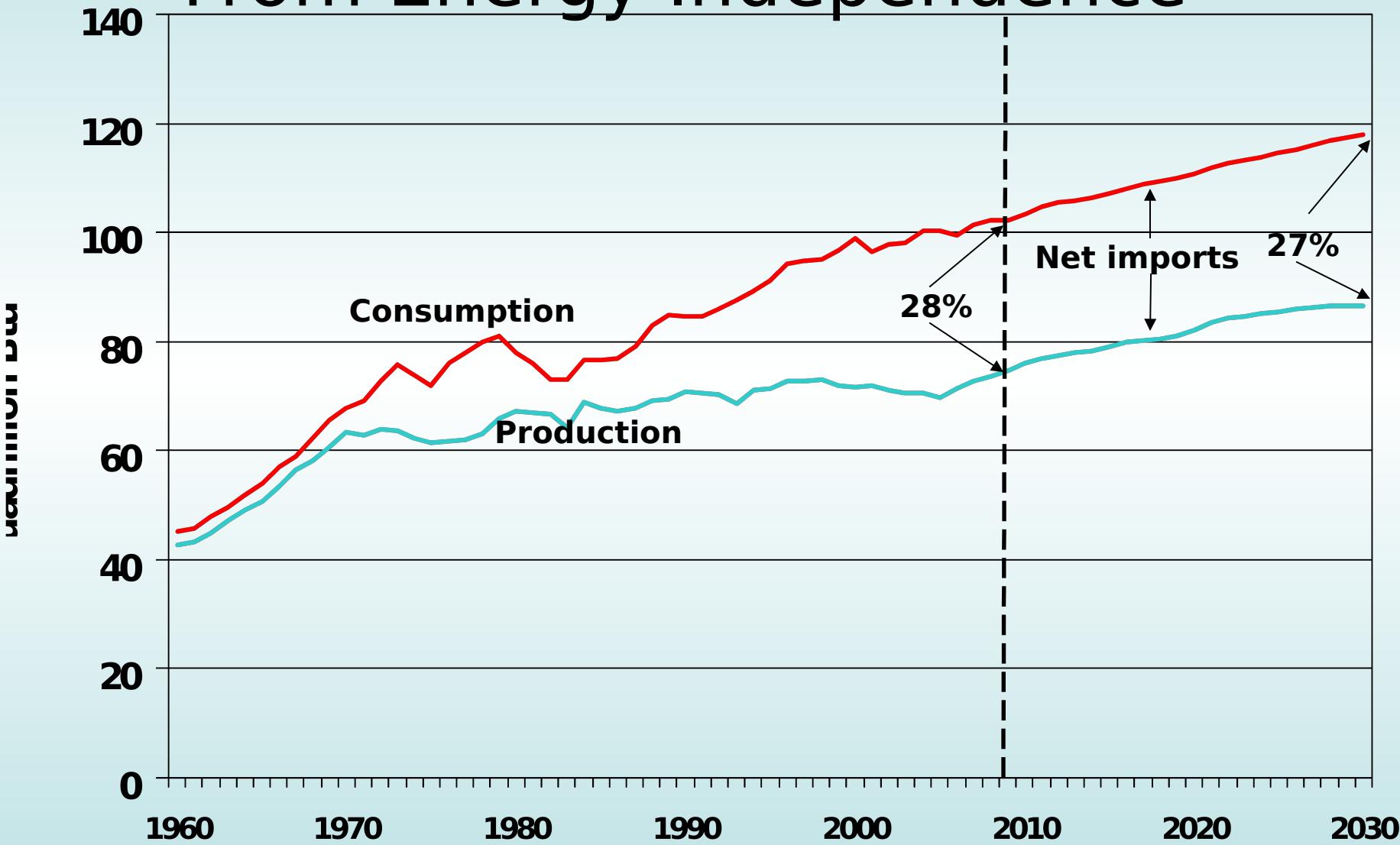
Supply Disruptions Drove Oil Prices Upwards



U.S. GDP Growth Has Fallen After Major Oil Supply Disruptions

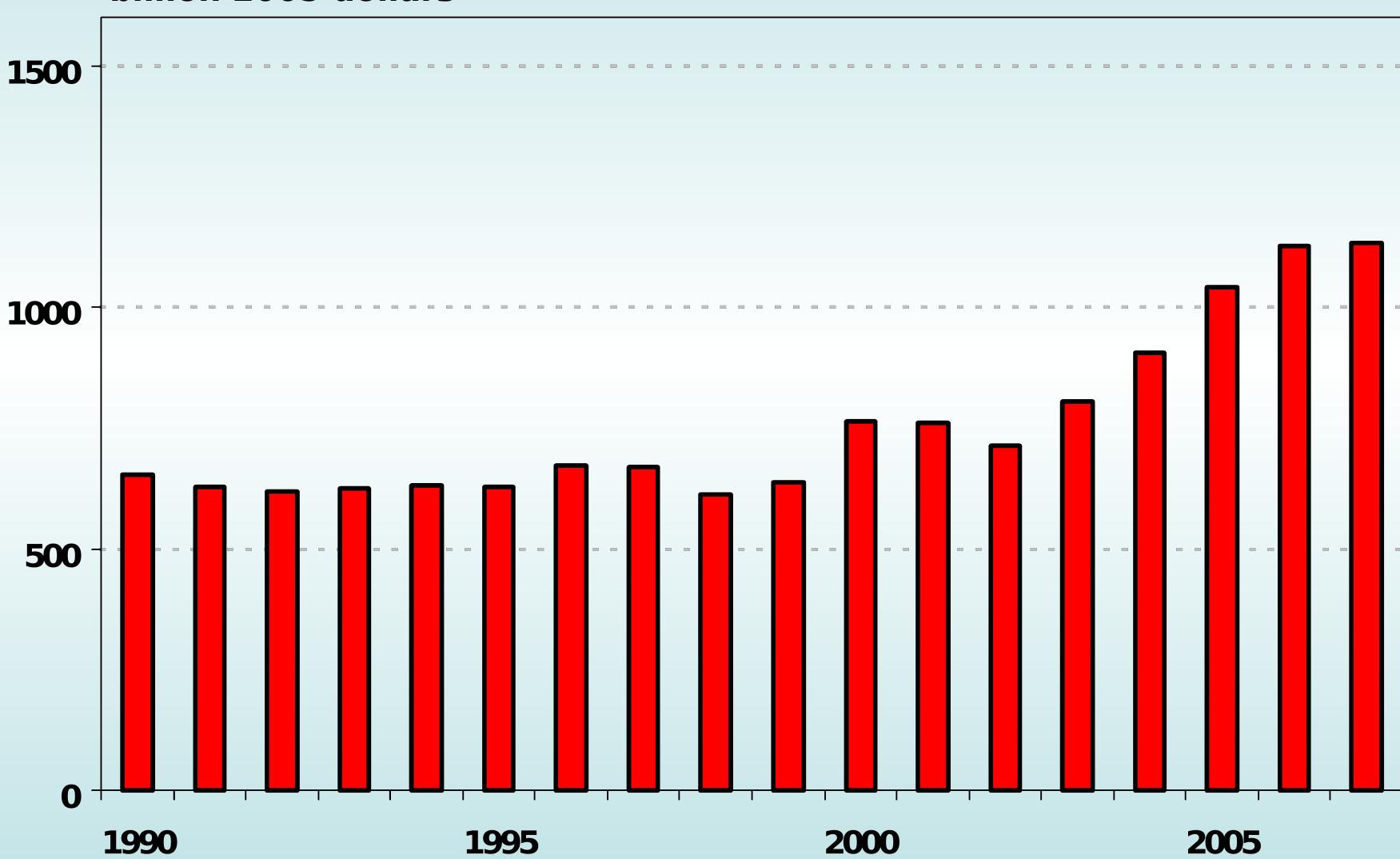


U.S. Energy Security Will Not Come From Energy Independence

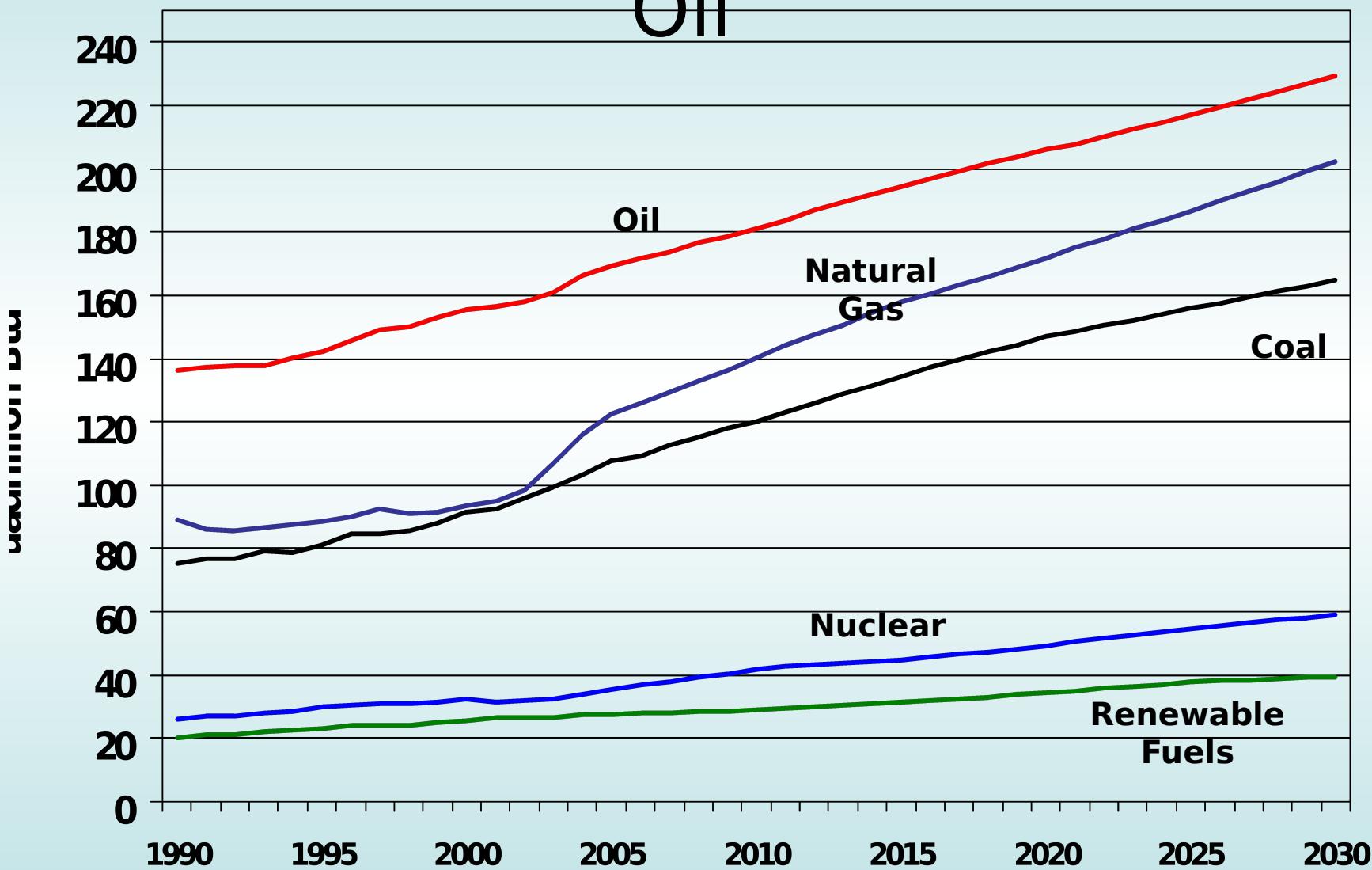


Source: U.S. Energy Information Administration, *Annual Energy Outlook 2008* 

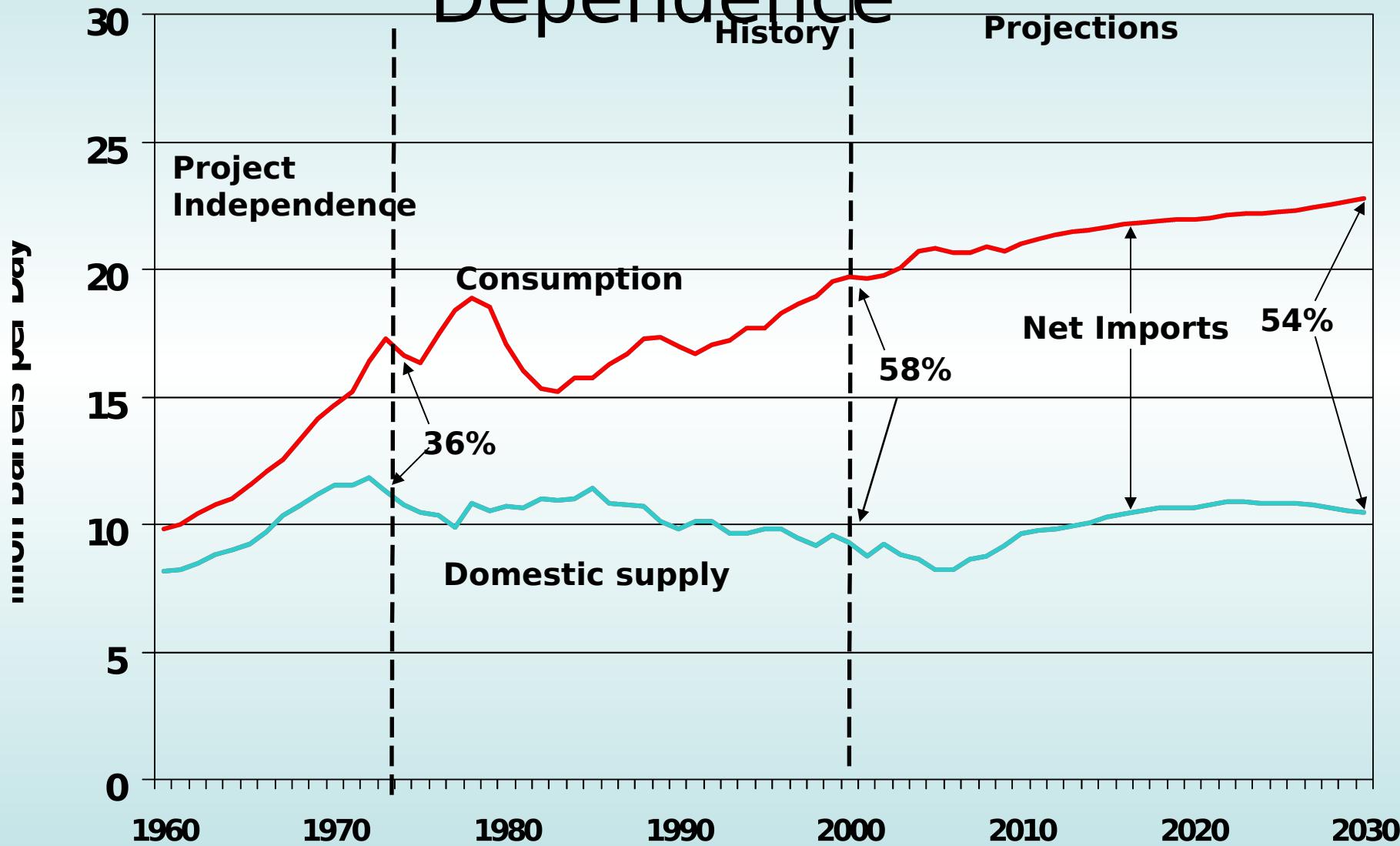
The Cost of U.S. Energy Usage Doubled To Over a \$Trillion In The Last 15 Years



The world is Dependent on Oil and Will Continue to be Dependent on Oil

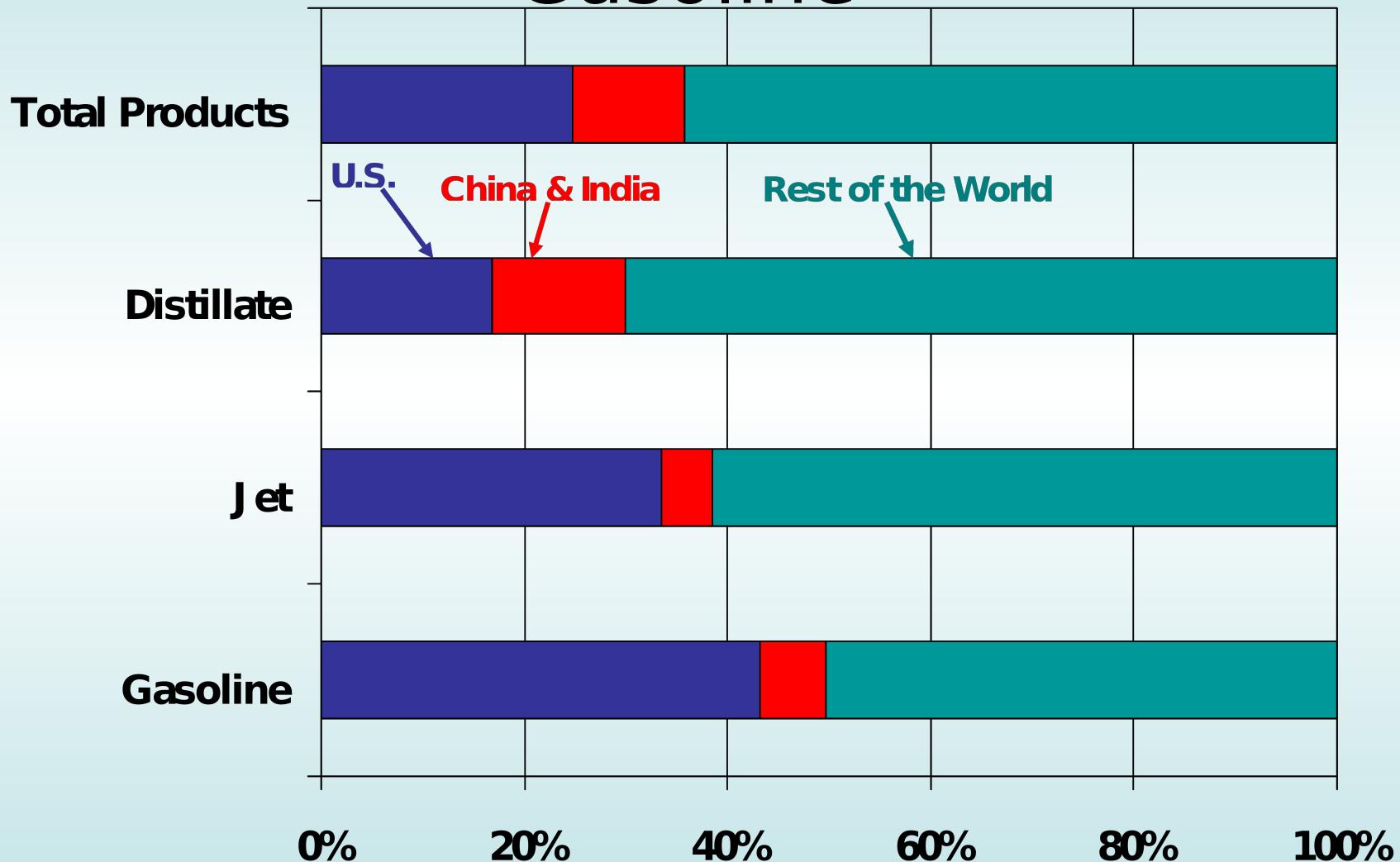


Despite 30 Years of Trying, the U.S. Has Done Little To Cut Its Oil Dependence



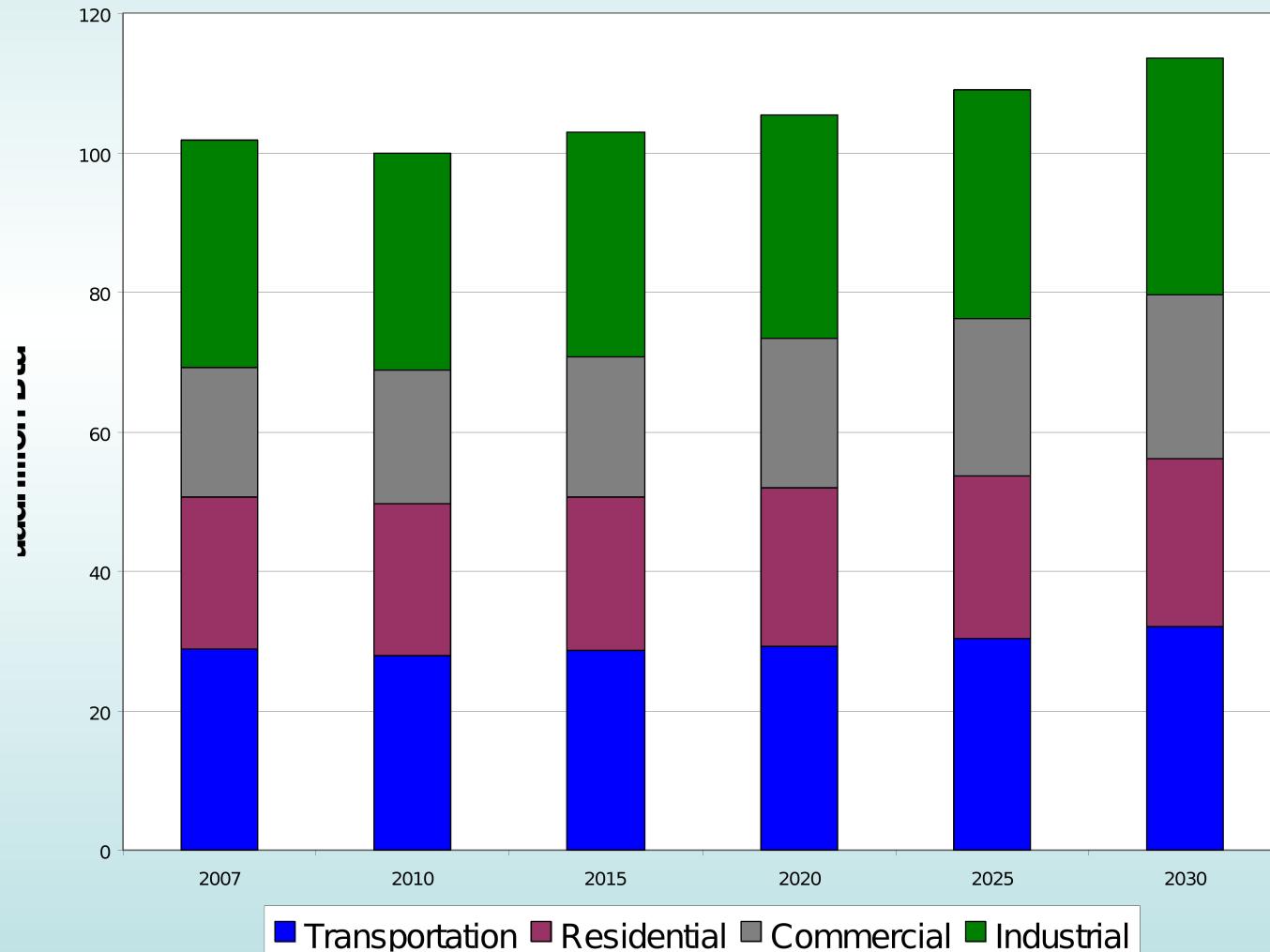
Source: U.S. Energy Information Administration, *Annual Energy Outlook 2008*.

Transportation is The Reason – The U.S. Consumes 40% of the World's Gasoline

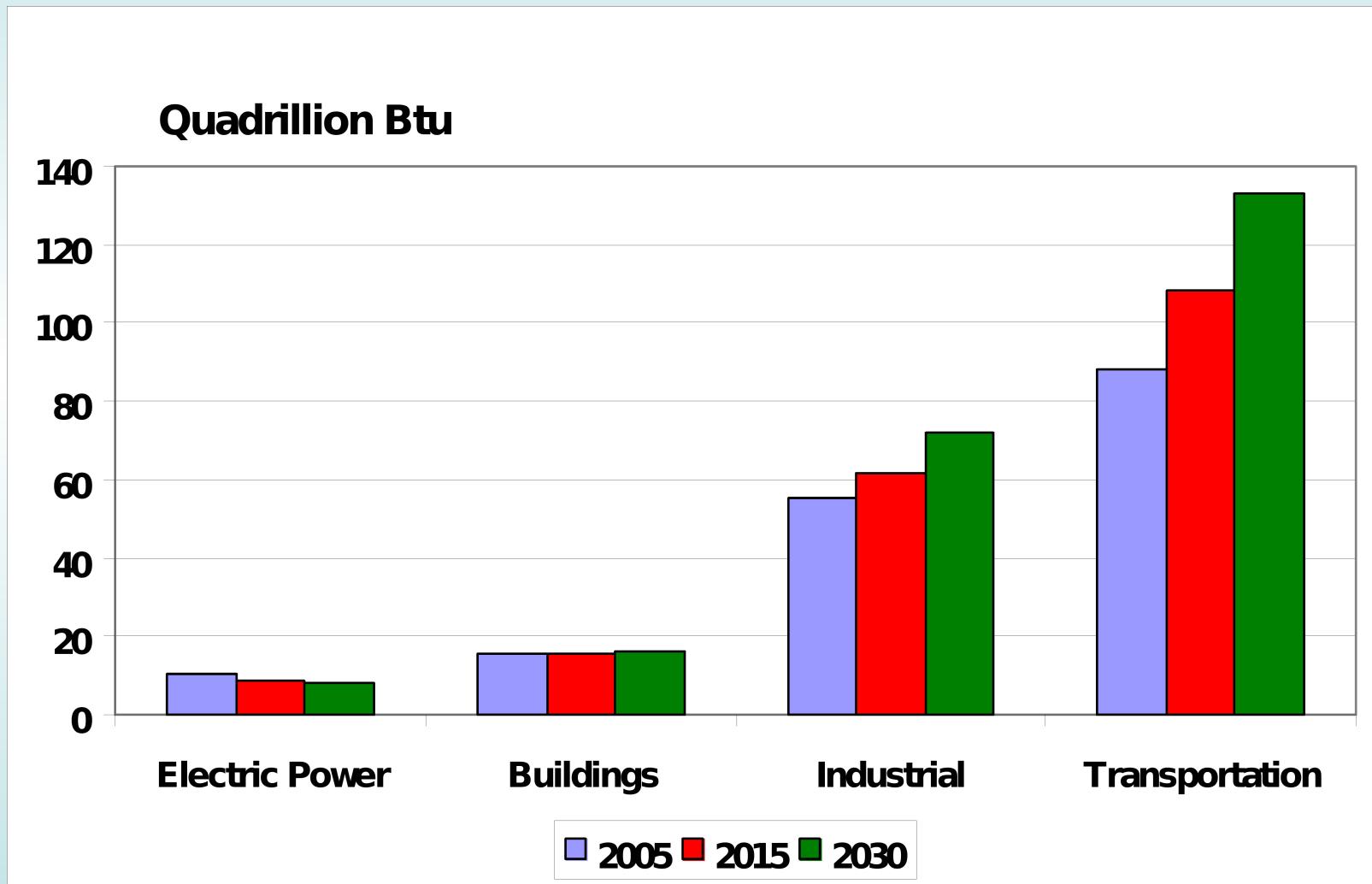


Source: EIA, *International Energy Annual*

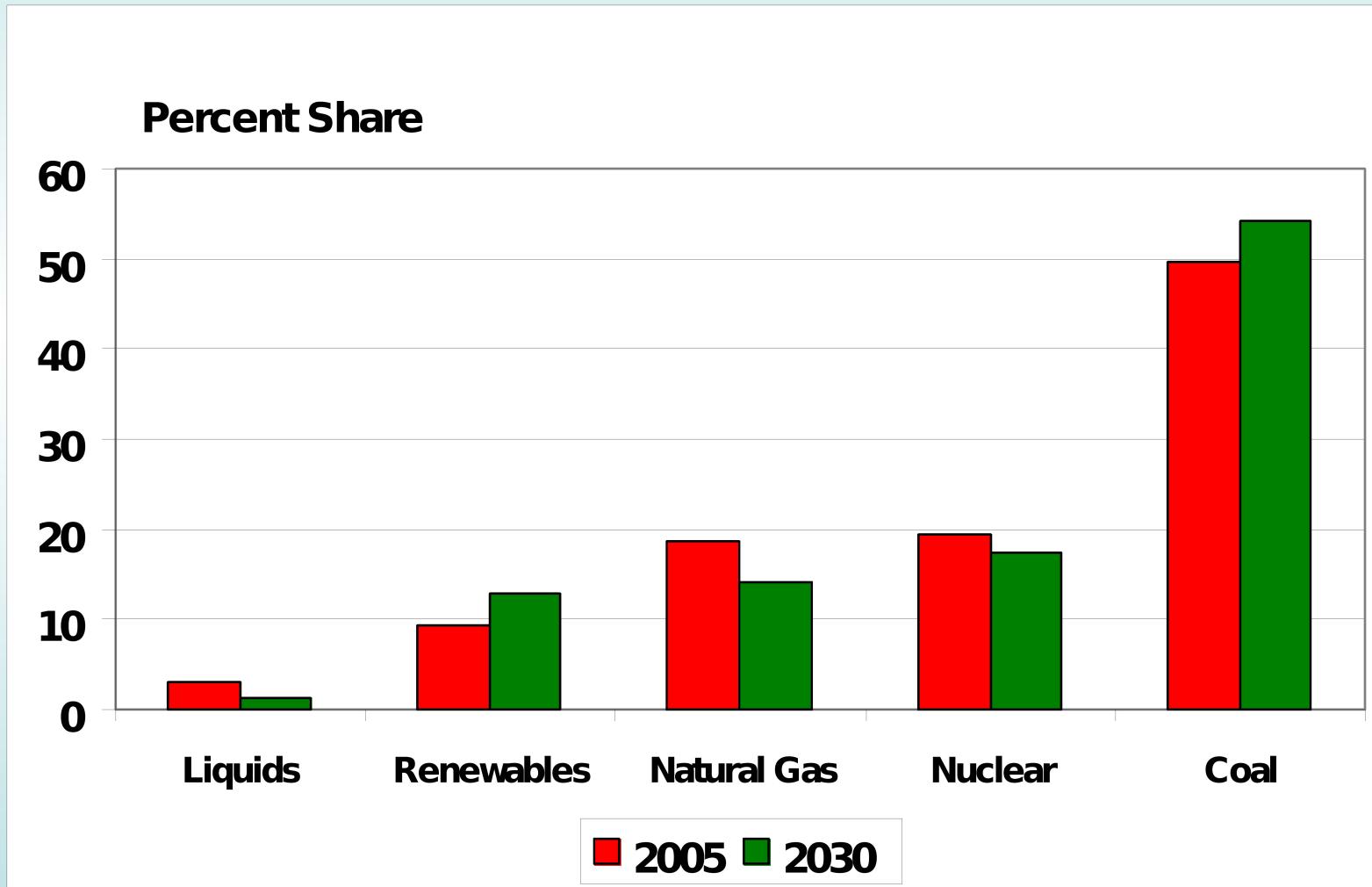
Transportation and Energy Use for Buildings Dominate US Energy Growth



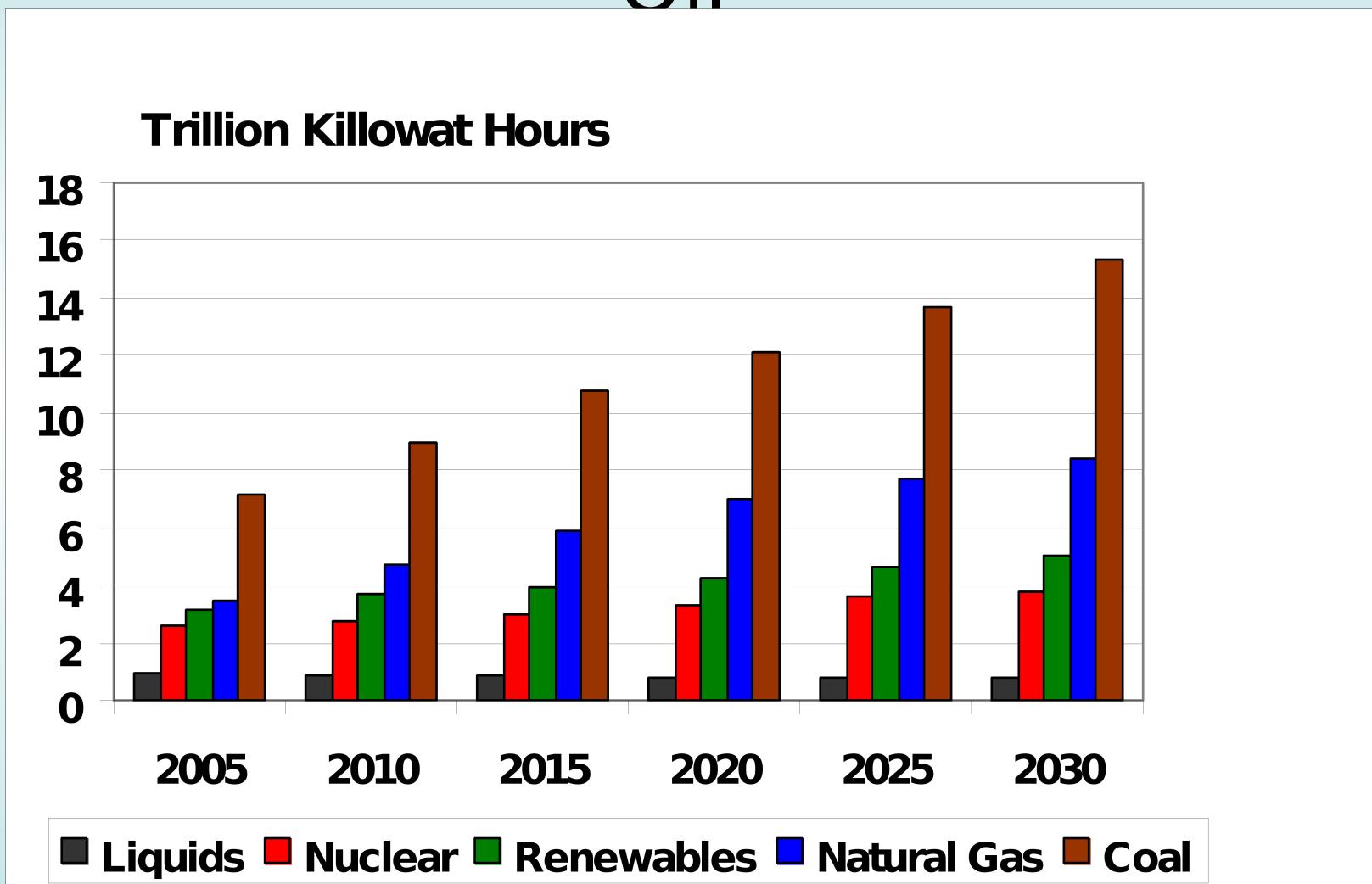
Global Oil Usage for Transportation Will Continue to Grow



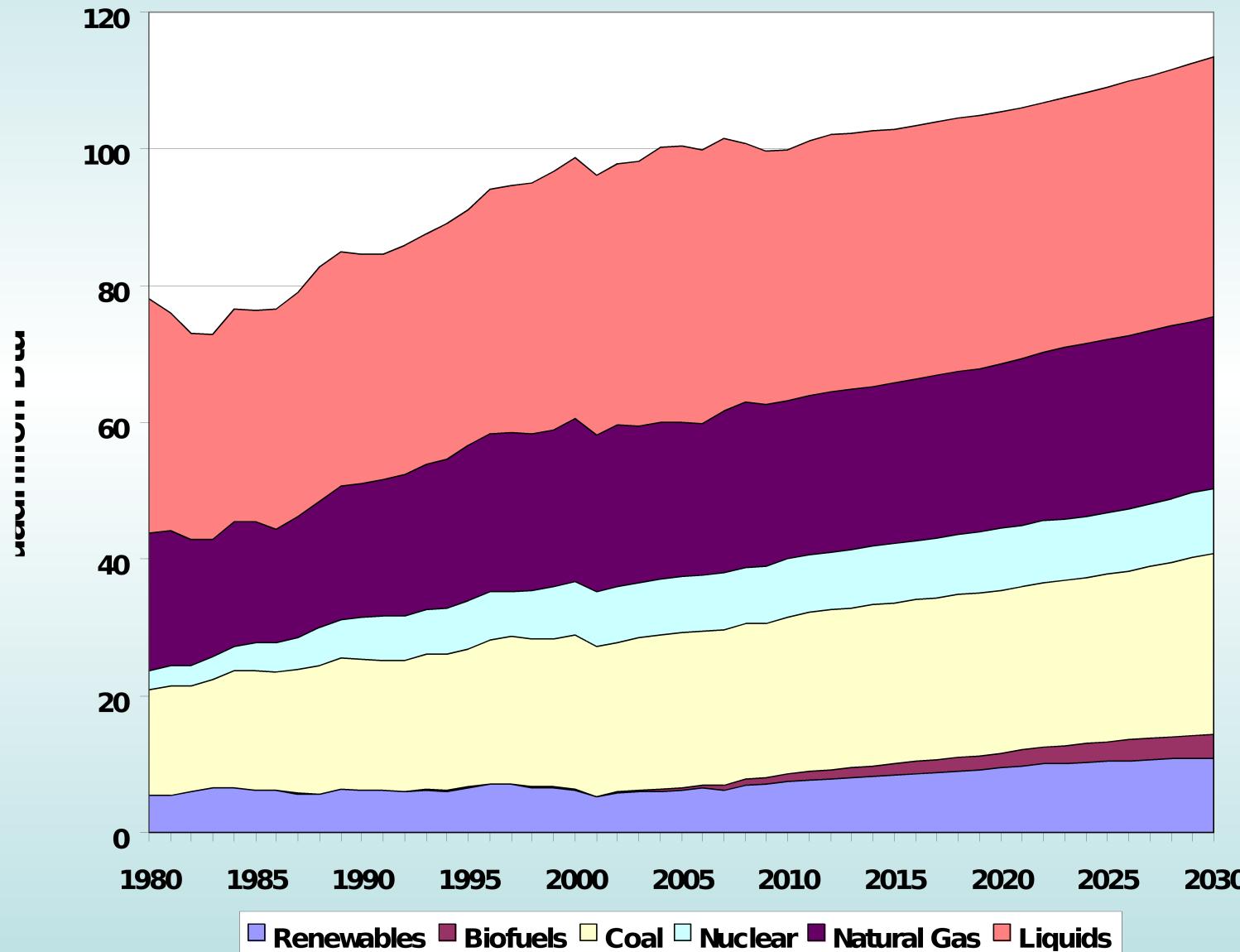
Even if We Use More Renewables, Coal Will Dominate US Power Generation



Renewable Usage for Electricity is Growing Globally but Will Not Displace Oil



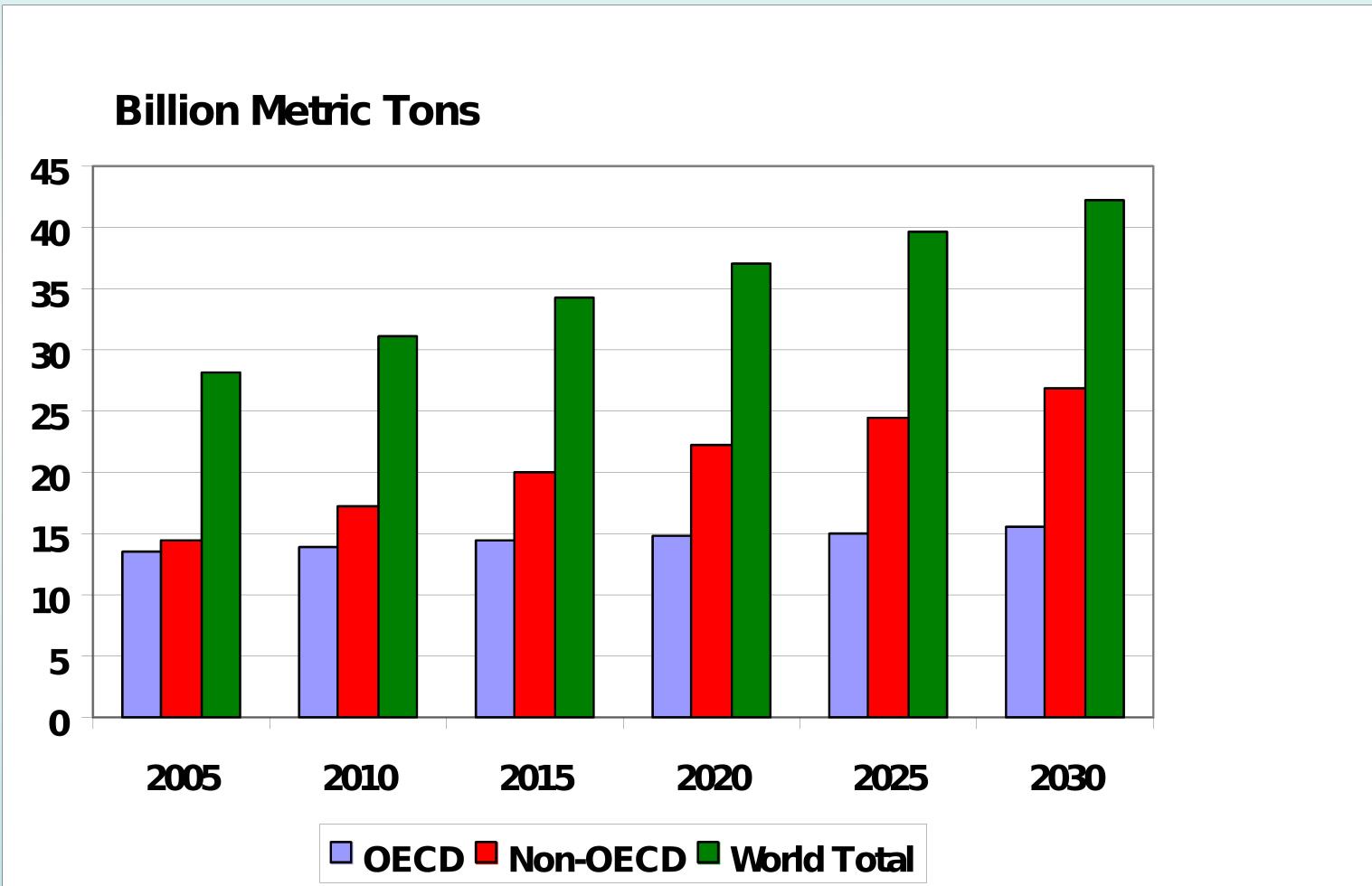
US Renewable Usage Will Increase, But So Will Use of Other Fuels



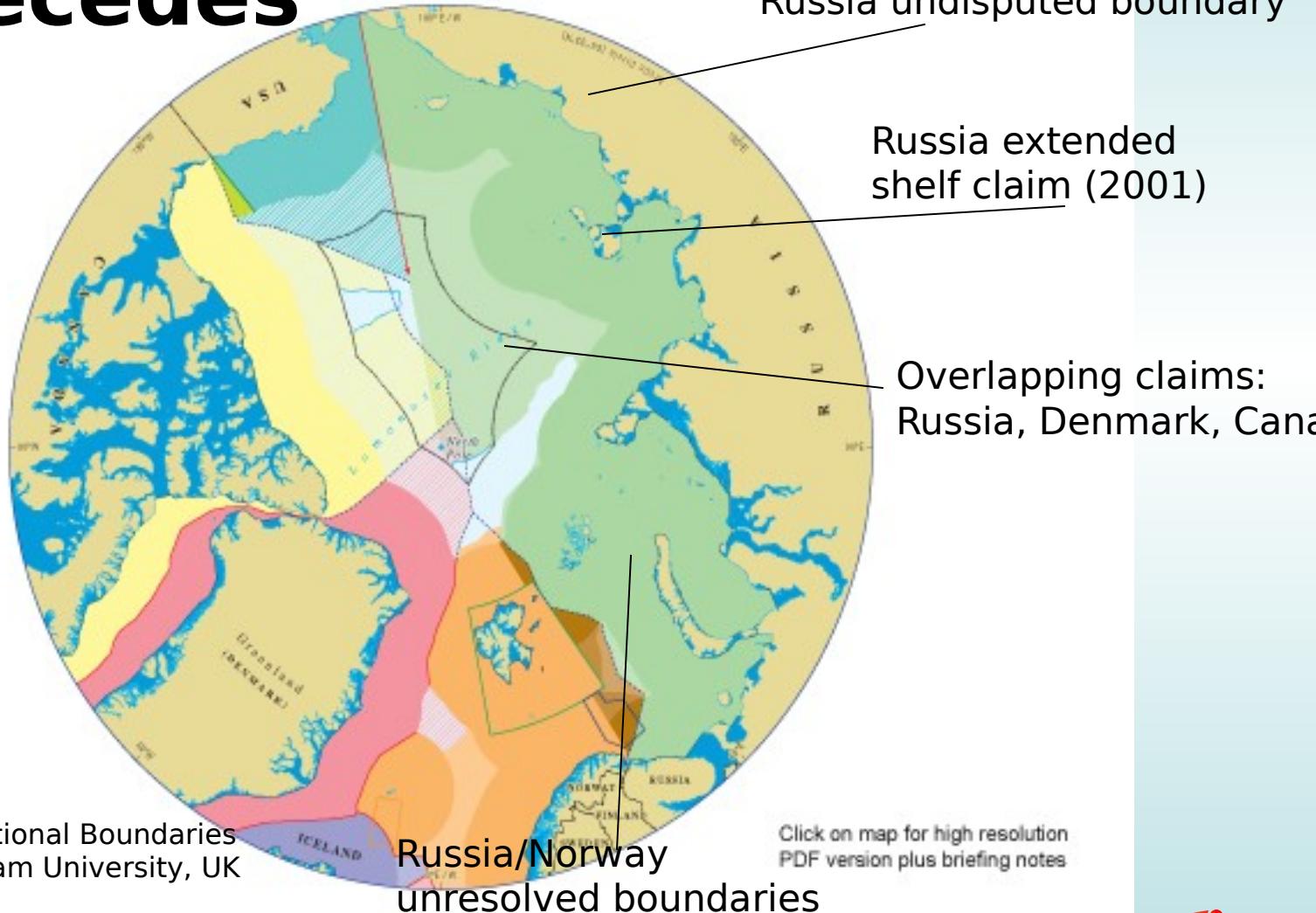
Renewable Energy Growth - Mostly Hydro Outside the OECD Countries

- In the non-OECD nations, much of the growth in renewable energy consumption is projected to come from mid- to large-scale hydroelectric facilities in Asia and in Central and South America.
- Among the OECD nations, hydroelectricity is fairly well established, and with the exception of Canada and Turkey there are few plans to undertake major hydroelectric power projects in the future.
- Instead, increases in OECD renewable energy consumption are expected to be in the form of nonhydroelectric renewables, especially wind and biomass.
- OECD renewable generation grows by 1.6 percent per year from 2005 to 2030, faster than all the other sources of electricity of generation except natural gas.

World Energy-Related Carbon Dioxide Emissions Continue to Increase



Scramble for the Arctic As Polar Ice Cap Recedes



Questions?

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